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Date: December 2, 2008
TO: Michael J. Yigdall – United States Patent and Trademark Office
FAX NO.: 571-273-3707
FROM: Ron Krosky (Reg. No. 58,564)

In re patent application of:

Applicant(s): Robert Anthony DeLine, et al.	Examiner: Michael J. Yigdall
Serial No: 10/681,759	Art Unit: 2192
Filing Date: October 8, 2003	Conf. No: 8309

Title: PLUG-IN PRE- AND POSTCONDITIONS FOR STATIC PROGRAM ANALYSIS

TOTAL NUMBER OF PAGES (INCLUDING THIS PAGE): 8

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Dear Examiner Yigdal:

Per our discussion during an interview on December 2, 2008, attached are proposed claim amendments for entrance as an Examiner's amendment to place this application in a condition for allowance. Thanks again for your time and consideration and please feel free to contact me to discuss this case further if appropriate.

Best regards,

-Ron Krosky

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CURRENT CLAIMS

Listing of Claims:

1. (Currently Amended) A computer implemented executable code check system comprising:

an input component that receives an object file and a specification associated with the object file, the specification comprising information associated with a plug-in condition for a method, the plug-in condition parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state, the plug-in condition includes a rule for using an interface, system resource management, order of method calls and formatting of string parameters; and,

the checker that employs the specification to facilitate static checking of the object file, the checker passing a user injected custom state to the plug-in condition to check a fault condition and providing information if the fault condition is determined, wherein memory operatively coupled to a processor retains at least a portion of the input component or the checker.

2. (Original) The system of claim 1, the plug-in condition comprising a precondition for the method.

3. (Original) The system of claim 2, the checker providing information associated with an object's state after a call to the method, the information being based, at least in part, upon the plug-in precondition.

4. (Original) The system of claim 1, the plug-in condition comprising a postcondition for the method.

5. (Original) The system of claim 4, the checker providing information associated with an object's state after a call to the method, the information being based, at least in part, upon the plug-in postcondition.

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6. (Original) The system of claim 1, the object file being based, at least in part, upon a language that compiles to Common Language Runtime.
7. (Original) The system of claim 1, the object file being based, at least in part, upon at least one of C#, Visual Basic.net and Managed C++.
8. (Original) The system of claim 1, the specification comprising information associated with a state-machine protocol.
9. (Original) The system of claim 8, a state of an object modeled with a custom state.
10. (Original) The system of claim 9, the state of the object further being modeled with a custom state component.
11. (Original) The system of claim 10, the specification comprising at least one of a plug-in precondition and a plug-in postcondition method, which is a method of the custom state that is invoked by the checker to perform interface-specific state checks and state transitions.
12. (Original) The system of claim 1, wherein the specification is embedded with the object file.
13. (Original) The system of claim 1, wherein the specification is stored in a specification repository.
14. (Original) The system of claim 1, further comprising a specification extractor that queries a database for its schema and stores information associated with the schema in a specification repository.

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15. (Currently Amended) A method of facilitating static checking of executable code that is at least partially executed by a computer, comprising:

- receiving executable code;
- receiving a specification associated with the executable code, the specification comprising information associated with at least one of a precondition or a postcondition for a method, the at least one of a precondition or a postcondition parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state, the at least one of a precondition or a postcondition includes one or more rules for using an interface, system resource management, order of method calls and formatting of string parameters;
- statically applying the specification to the executable code by passing a user injected custom state to the at least one precondition or postcondition;
- determining whether a fault condition exists based, at least in part, upon the statically applied specification; and,
- providing information associated with the fault condition, [[if]] when a fault condition is determined to exist.

16. (Original) A computer readable medium having stored thereon computer executable instructions for carrying out the method of claim 15.

17. (Currently Amended) A method of developing a software component that is at least partially executed by a computer, comprising:

- implementing a subclass of a custom state class;
- implementing at least one of a plug-in precondition or a plug-in postcondition as a method of the subclass, the at least one of a plug-in precondition or a plug-in postcondition parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state, the at least one of a plug-in precondition or a plug-in postcondition includes at least one rule for using an interface, system resource management, order of method calls and formatting of string parameters;
- placing a custom attribute on an enclosing type declaration that references the custom state subclass;

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placing an attribute on a declaration that references the at least one of a plug-in precondition or a plug-in postcondition; ~~and~~
determining a fault condition based in part upon ~~[[the]]~~ information from the at least one of plug-in precondition or a plug-in postcondition; ~~and~~
providing information associated with the fault condition, when a fault condition is determined to exist.

18. (Original) A computer readable medium having stored thereon computer executable instructions for carrying out the method of claim 17.

19. (Currently Amended) A method of performing static checking of executable code that is at least partially executed by a computer, comprising:
invoking a precondition plug-in that is arbitrary code written by a programmer, the precondition plug-in includes one or more rules for using an interface, system resource management, order of method calls and formatting of string parameters;
providing the precondition plug-in with a program execution state at the call to a method;
receiving information from the precondition plug-in, the precondition plug-in parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state to enable the checker to find defects in the query;
determining whether a fault condition exists based, at least in part, upon the information from the pre-condition plug-in;
providing information associated with the fault condition, ~~[[if]]~~ when a fault condition is determined to exist; and
removing the precondition plug-in from the executable code to reduce the overall physical storage requirements associated with the executable code.

20. (Original) The method of claim 19, further comprising at least one of the following:

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invoking a postcondition plug-in, providing the postcondition plug-in with the program execution state; and,
receiving information from the postcondition plug-in.

21. (Cancelled)

22. (Currently Amended) A computer readable medium storing computer executable components of an executable code check system comprising:

an input component that receives an object file and a specification associated with the object file, the specification comprising information associated with a plug-in condition for a method, the plug-in condition parses contents of a query string and makes the content available to a checker component as part of a program's approximate execution state and the plug-in condition includes a rule for using an interface, system resource management, order of method calls and formatting of string parameters; and,

the checker component that employs the specification to facilitate static checking of the object file, the checker component passing a user injected custom state to the plug-in condition to check a fault condition and providing information [[if]] when the fault condition is determined.

23. (Currently Amended) A computer implemented executable code check system, comprising:

means for receiving a specification associated with an object file, the specification comprising information associated with a plug-in condition for a method, the plug-in condition parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state and includes one or more rules for using an interface, system resource management, order of method calls and formatting of string parameters;

means for statically checking the object file based, at least in part, upon the specification;

means for passing a user injected custom state to the plug-in condition and determining [[if]] when a fault condition exists; and,

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means for providing information [[if]] when a fault condition is determined to exist,

wherein a processor operatively coupled to memory executes at least one instruction in relation to at least one of the aforementioned means.

24. (Currently Amended) A method that is at least partially executed by a computer, of performing static checking of executable code, comprising:

- receiving a request, the request including a parameter;
- receiving a plug-in condition that parses contents of a query string and makes the content available to a checker as part of a program's approximate execution state, the plug-in condition includes one or more rules for using an interface, system resource management, order of method calls and formatting of string parameters;
- setting a type of a result of a method call to a type of the parameter;
- employing the parameter only during static checking of the method; and
- performing component-wise comparison of a user injected custom state and a state defined by the parameter to determine a fault condition;

providing information associated with the fault condition, when a fault condition is determined to exist.